AF/1710

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/731,546	Confirmation No. 4549
Applicant (s)	:	Alexander B. Morgan et al.	
Filed	:	December 9, 2003	
TC/A.U.	:	1711	
Examiner	:	Thao T. Tran	
Title	:	IGNITION RESISTANT POLYMERIC COMPOSITE	
Docket No.	:	62227A	
Customer No.	:	00109	

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, ON:

January 9, 2006

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Joslyn M. Damore

PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Joslyn M. Damore

SIGNATURE OF PERSON SIGNING CERTIFICATE

January 9, 2006

DATE OF SIGNATURE

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

This is in response to the ***Notification of Non-Compliant Appeal Brief*** dated December 27, 2005. Applicant is resubmitting a Revised Appeal Brief with the items which were inadvertently omitted (i.e., the evidence appendix and the related proceedings appendix) from the October 19, 2005 Appeal Brief.

Applicant believes this response requires no fee, if this is incorrect please debit our Deposit Account 04-1512 accordingly.

Respectfully submitted,

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/jmd

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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REVISED BRIEF FOR APPELLANT

REAL PARTY IN INTEREST

The Real Party in Interest in this Appeal is Dow Global Technologies Inc. by virtue of an unrecorded assignment from the inventors.

RELATED APPEALS AND INTERFERENCES

There are no currently pending related appeals or interferences.

STATUS OF CLAIMS

Claims 1 and 3-20 are pending. Claim 2 has been cancelled. The pending claims stand rejected under 35 U.S.C. § 103(a).

STATUS OF AMENDMENTS

The amendments have been entered by the Examiner.

SUMMARY OF INVENTION

The invention relates to ignition resistant polymeric composites (see, e.g. claim 1). Polymer composites used in the electronics industry (e.g. as casing of cell phone) must pass the UL-94 flame retardancy test (page 1, lines 6-10). To comply with these standards, the polymers typically have non-halogenated fire retardants such as phosphates added to the material. (Page 1, lines 11-12). However, the effective amount of such fire retardants weakens the mechanical properties and increases the cost of such composites (page 1, lines 13-14). Thus, the problem the inventors were seeking to solve was to get good flame resistance while avoiding the drawbacks arising from use of conventional flame retardants in conventional amounts to achieve that flame resistance (Page 1, lines 25-26). Applicants discovered that they could make articles that passed the UL-94 flame retardancy test while using substantially less flame retardant than is normally required to pass the test (page 2, lines 13-14 and the pending claims, particularly claims 19 and 20). Applicants accomplished this by using relatively low amounts of flame retardant in combination with an organosilicon layer adhered to the surface of the article (see pending claims). Claims 1, 9, and 19 are addressed to the embodiment of the invention for polymeric articles made of the listed polymers. Claims 3-8, 10-18 and 20 are addressed to the embodiment of the invention where the polymeric article comprises a blend of polycarbonate and ABS.

ISSUE

Are the pending claims properly rejected under 35 U.S.C. § 103(a) over Asai in view of Jeong? More particularly, is it obvious to form an ignition resistant polymeric composite which comprises an organosilicon coated substrate where the substrate is formed from a low amount of a flame retardant intermixed with a polymer selected from a specific list of polymers that do not include polyamides (and preferably are ABS/PC blend) when Asai teaches use of organosilicon coatings for antistatic properties in combination with conventional use of flame retardants and

Jeong teaches use of phosphorous compounds in low quantities as adhesion promoters with suggested addition of other flame retardants in polyamides?

GROUPING OF CLAIMS

For purposes of this appeal, Claims 3-8 and 11-18 may be considered to stand or fall together with the patentability of claim 3. Claims 1 and 9 may be considered to stand or fall together with the patentability of claim 1. The patentability of claims 19 and 20 are each to be evaluated independently of the other pending claims and each other.

ARGUMENT

Group 1: Claims 3-8 and 11-18. It is not obvious, in view of Jeong's teaching of the use of low levels (0.1 to 5 parts by weight) of phosphorous materials as adhesion promoters in polyamides, Jeong's suggestion to use additional flame retardants, and Asai's teaching of use of organosilicon coatings on polymers for antistatic properties, to form an ignition resistant polymer composite which comprises an organosilicon coated polycarbonate/ABS blend intermixed with low levels of fire retardant.

The group 1 claims are addressed to ignition resistant polymeric composite having polycarbonate/ABS polymer substrate with a low level of fire retardant and having an organosilicon overcoating. Claims 3-8 and 18 require fire retardant amounts of less than 7.5 weight percent. Claims 11-17 require fire retardant amounts of less than 15% and further require an adhesion promoting layer between the organosilicon coating and the substrate.

Asai teaches a polymeric article having an organosilicon coating used to improve antistatic properties. Asai contains a generic reference to the use of "conventional additives and processing aids including . . . flame retardants . . ." Clearly, Asai does not teach or suggest that those flame retardants be used in other than conventional amounts.

Jeong teaches polyamides (which are not included within the scope of the pending claims) having phosphorous containing flame retardants as adhesion promoters in amounts of 0.1 to 5 parts by weight. Jeong further teaches addition of other additives including flame retardants. Clearly, Jeong's teaching of a use of

phosphorous containing flame retardants as adhesion promoters in low amounts in polyamides would not have led a skilled worker to only use low amounts of flame retardants since Jeong further suggests use of additional flame retardants. Thus, neither reference suggests using flame retardants in less than conventional amounts.

Moreover, Jeong's teaching with regard to polyamides makes no suggestion with regard to the significantly chemically different polycarbonate/ABS systems. Thus, Jeong's limited teachings do not reasonably combine with Asai's teachings to render the group 1 claims obvious.

Furthermore, it is critical to remember further that obviousness must be determined from the perspective of the skilled worker at the time the application was made. The skilled worker here was seeking a solution to mechanical integrity, cost, and ignition resistance problems. Asai and Jeong would not have led a skilled worker to use an organosilicon coating in combination with low levels of fire retardant to achieve a composite having a V-0 rating on the UL-94 flammability test since Asai and Jeong are not addressed to the issues of ignition resistance and both imply or suggest conventional levels of flame retardant additives. Rather, Applicant's submit that this rejection is rather based on impermissible hindsight reconstruction of the references.

In view of the above discussion, Applicant's request that this basis for rejection be withdrawn with regard to claims 3-8 and 11-18.

Group 2: Claims 1 and 9. It is not obvious, in view of Jeong's teaching of use of low levels (0.1 to 5 parts by weight) of phosphorous materials as adhesion promoters in polyamides, Jeong's suggestion to use additional flame retardants, and Asai's teaching of use of organosilicon coatings on polymers for antistatic properties, to form an ignition resistant polymer composite which comprises an organosilicon coated polymer selected from a limited list of polymers intermixed with no greater than 7.5 weight percent fire retardant.

Claims 1 and 9 are addressed to polymer composites having the stated organosilicon coating on a substrate made from up to 7.5 weight percent of fire retardant intermixed with a polymer selected from the list recited in claim 1. Polyamides are not included in such list.

The arguments presented with regard to group 1 are applicable here as well. In addition, it is important to note that the polymers listed in claim 1 are chemically different than polyamides where Jeong taught use of low levels of phosphorus materials as adhesion promoters in combination with additional flame retardants. Thus, Jeong and Asai are not properly combined to render the present claims in group 2 obvious.

In view of the above discussion, Applicant's request that this basis for rejection be withdrawn with regard to claims 1 and 9.

Group 3: Claim 19. It is not obvious, in view of Jeong's teaching of use of low levels (0.1 to 5 parts by weight) of phosphorous materials as adhesion promoters in polyamides, Jeong's suggestion to use additional flame retardants, and Asai's teaching of use of organosilicon coatings on polymers for antistatic properties, to form an ignition resistant polymer composite which comprises an organosilicon coated polymer selected from a limited list of polymers intermixed with no greater than 7.5 weight percent fire retardant which composite meets a V-O rating on the UL 94 flame retardancy test.

The arguments presented with regard to groups 1 and 2 are applicable here as well. Moreover, nothing in any of the references would have suggested the surprising result that such remarkable flame retardancy could be achieved in the composites of the present invention. Thus, claim 19 is even more clearly patentable over Asai and Jeong.

In view of the above discussion, Applicant's request that this basis for rejection be withdrawn with regard to claim 19.

Group 4: Claim 20. It is not obvious, in view of Jeong's teaching of the use of low levels (0.1 to 5 parts by weight) of phosphorous materials as adhesion promoters in polyamides, Jeong's suggestion to use additional flame retardants, and Asai's teaching of use of organosilicon coatings on polymers for antistatic properties, to form an ignition resistant polymer composite which comprises an organosilicon coated polycarbonate/ABS blend intermixed with low levels of fire retardant which composite meets a V-O rating on the UL 94 flame retardancy test.

The arguments presented with regard to groups 1 and 2 are applicable here as well. Moreover, nothing in any of the references would have suggested the surprising result that such remarkable flame retardancy could be achieved in the composites of the present invention. Thus, claim 20 is even more clearly patentable over Asai and Jeong.

In view of the above discussion, Applicant's request that this basis for rejection be withdrawn with regard to claim 20.

Respectfully submitted,

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Appendixes

CLAIMS APPENDIX

Pending Claims as of July 6, 2005.

WHAT IS CLAIMED IS:

1. (previously amended) An ignition resistant polymeric composite comprising, a) a polymeric substrate which is selected from the group consisting of a polystyrene, an ABS, a polycarbonate, a blend of a polycarbonate and an ABS, a thermoplastic polyurethane, a thermoset polyurethane, a polyetherimide, a polyaramid, a polyetheretherketone, a polysulfone, a polylactic acid, an epoxy laminate, a vinyl ester laminate, a cyanate ester composite, a polyolefin, a rubber, a polyvinyl chloride, and a terephthalate; b) a flame retardant intermixed with the polymeric substrate in an amount up to 7.5 weight percent based on weight of the flame retardant and the substrate; and c) a partially oxidized plasma polymerized organosilicon layer adhered to the substrate.

2. (cancelled)

3. (previously amended) The ignition resistant polymeric composite of Claim 1 wherein the plastic substrate is a blend of a polycarbonate and an ABS.

4. (original) The ignition resistant polymeric composite of Claim 3 wherein the flame retardant is an ignition resistant phosphate compound.

5. (original) The ignition resistant polymeric composite of Claim 4 wherein the partially oxidized plasma polymerized organosilicon layer adheres to the substrate by way of a surface pretreatment layer.

6. (original) The ignition resistant polymeric composite of Claim 5 wherein the surface pretreatment layer is formed by either of 1) plasma pretreatment of the substrate in the presence of oxygen- or nitrogen-containing molecules or 2) plasma polymerization of an organosilicon

compound using a stoichiometric excess of the organosilicon compound with respect to oxygen.

7. (original) The ignition resistant polymeric composite of Claim 6 wherein the surface pretreatment layer is formed by plasma polymerization of an organosilicon compound in the absence of oxygen.

8. (previously amended) The ignition resistant polymeric composite of Claim 4 wherein the concentration of the ignition resistant phosphate compound is not greater than 7% by weight, based on the weight of the phosphate and the plastic substrate.

9. (previously amended) The ignition resistant polymeric composite of Claim 1 wherein the concentration of the ignition resistant phosphate compound is not greater than 7% by weight, based on the weight of the phosphate and the plastic substrate.

10. (original) The ignition resistant polymeric composite of Claim 7 wherein concentration of the ignition resistant phosphate compound is not greater than 5.5% by weight, based on the weight of the phosphate and the plastic substrate.

11. (previuosly amended) An ignition resistant polymeric composite comprising, a) a substrate containing a blend of a polycarbonate and an ABS; b) a phosphate flame retardant intermixed with the substrate in an amount of not more than 15% based on weight of flame retardant and substrate; c) partially oxidized plasma polymerized organosilicon layer adhered to the substrate; and d) a surface pretreatment layer that promotes adhesion of the partially oxidized plasma polymerized organosilicon layer to the substrate.

12. (original) The ignition resistant polymeric composite of Claim 11 wherein the phosphate flame retardant is selected from the group consisting of

resorcinol bis(dixylenyl phosphate), bisphenol A diphosphate, and triphenyl phosphate.

13. (original) The ignition resistant polymeric composite of Claim 11 wherein the substrate contains from 60% to 90% of the polycarbonate by weight and from 10% to 40% of the ABS by weight, based on the weight of the polycarbonate and the ABS.

14. (original) The ignition resistant polymeric composite of Claim 13 wherein the partially oxidized plasma polymerized organosilicon layer has the formula $SiO_xC_yH_z$, where x is not less than 1.0; y is not less than 0.2; and z is greater than or equal to 0.

15. (original) The ignition resistant polymeric composite of Claim 13 which further includes an SiO_x layer superposing the partially oxidized plasma polymerized organosilicon layer, wherein x is in the range of 1.6 to 2.0.

16. (original) The ignition resistant polymeric composite of Claim 11 which is an enclosure for a computer casing, a monitor housing, a calculator, a cell phone, a television set, a DVD player, or a CD players.

17. (previously added) The ignition resistant polymeric composite of claim 11 where the amount of flame retardant is not more than 10 weight percent based on weight of substrate and flame retardant.

18. (previously added) The ignition resistant polymeric composite of claim 11 where the amount of flame retardant is not more than 7 weight percent based on weight of substrate and flame retardant.

19. (previously added) The composite of claim 1 which achieves a V-0 rating in the UL-94 flammability test.

20. (previously added) The composite of claim 11 which achieves a V-0 rating in the UL-94 flammability test.

EVIDENCE APPENDIX

There was no evidence submitted by Applicant or entered by the Examiner for this application.

RELATED PROCEEDINGS APPENDIX

There are proceedings or decisions related to this application.